

**FIRE MARSHAL PERMITS,  
COMBUSTIBLE CONTROLS, AND  
CONSTRUCTION/OCCUPANCY  
REQUIREMENTS**

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**1.0 PURPOSE AND SCOPE**

(5.1.1, 5.1.2, 5.1.3, 5.1.5)

This Standard defines processes that are credited as Defense in Depth controls from RPP-13303, "Tank Farm Documented Safety Analysis," and provides the fire protection and prevention requirements for:

- Managing combustibles during activities. The use of combustibles should always be guided by as low as reasonably achievable (ALARA) principles.
- General facility occupancy as well as specific requirements for construction and demolition tasks (both interior and exterior).
- Fire Marshal Permits as required in accordance with Section 3.4 of this Standard. Following review of the Permit request data describing the related activity and prior to the commencement of work, the Fire Marshal Permit is issued by the Tank Operations Contractor's (TOC) Fire Marshal/Fire Protection Engineer (FPE) or designated representative.
- Seasonal fire protection requirements. Seasonal requirements shall be used, as appropriate, throughout the year. During the months of warm weather, additional attention to outdoor housekeeping and control of ignition sources is necessary.

**2.0 IMPLEMENTATION**

This standard is effective on the date shown in the header.

**3.0 STANDARD**

The following applies to all TOC personnel and subcontractors activities and to the occupancy of facilities utilized by the TOC, as appropriate.

**3.1 COMBUSTIBLES AND HOUSEKEEPING****3.1.1 Activities NOT Allowed**

NOTE: Exceptions may be made for events using off-Site catering services. Notify TOC FPE with event details and a course of action will be determine, which may include a need to issue a Fire Marshal Permit.

1. Any candle use (gel, paraffin, jar, floating, etc.)
2. Any indoor activity involving the use of sterno.
3. Any refuse burning activity unless authorized by a Fire Marshal Permit.
4. Any OIL filled turkey or deep fat frying.

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NOTE: When a Fire Marshal Permit has been obtained, the frying equipment may be used with water, NOT OIL, for cooking foods such as corn on the cob. Unless otherwise stated on the Permit, the equipment is to be removed from the Hanford Site within 48 hours of the Permitted activity.

**3.1.2 Amount of Combustible Materials Allowed to Accumulate**

1. Accumulation of combustible materials must be limited to the quantity required for current needs.
  - Accumulation of combustibles in excess of current needs/usage is considered storage of combustibles and shall be located in an appropriate storage area (i.e., storeroom, warehouse, cabinets, filing drawers, metal shelving, round basket, etc.)
  - Accumulation of combustibles shall be separated from ignition sources.
2. Combustible solid waste and residue from handling flammable and combustible liquids shall be stored in approved, closed, metal containers and shall be disposed of daily.

NOTE: For additional information, see TFC-ESHQ-FP-STD-13.

**3.1.3 Housekeeping Requirements for Controlling Combustibles**

NOTE: Combustible loading issue versus housekeeping issue:

Fire Protection Engineering principles use combustible loading in the form of fuel packages to identify radiant heat releases and required separation distances to prevent transition of one fire to an adjacent location. This can be calculated for indoor locations where the building geometry and the type of material involved are known.

In the case of outside locations, NFPA 1144, "Protection of Life and Property from Wildfire" assumes a worst case and simplifies this defensible distance to be 30 feet. At tank farms, the fences around the farms act as a barrier minimizing the combustibles entering into the farms. Structures outside the farms that represent a significant loss, either from monetary loss or program interruption, require the same diligence in maintaining the 30 feet of combustible free clearance.

Housekeeping issues are often being confused with fire protection combustible loading requirements. Housekeeping is a good management practice that is important to a well-run business. They are, however, subjective, and controls should be implemented using a graded approach.

1. Within the tank farm fenced area, waste or unused combustible material shall be placed in a designated, appropriately identified area until permanent removal is arranged.
2. Work room floors are to be maintained clean and dry to the extent practical.
3. Offices and desks shall be maintained ALARA.

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NOTE: This means binders and books in an orderly manner and paper/files not applicable to current tasks kept in closed cabinets. No under desk storage of combustible material unless it is on a shelf that is part of the desk. No stacks of paper or cardboard boxes on the floor in the path of egress.

4. Combustible waste shall be collected in metal containers provided with lids.

NOTE: Lids are not required for office waste cans.

5. Combustible waste shall not be permitted to accumulate inside or adjacent to buildings.
6. Combustible materials shall not be stored in building stairwells or corridors.
7. Combustibles stored in closed metal cabinets are permitted in corridors IF the cabinets do not reduce the required exit width of the corridors.

**3.1.4 Non-Combustible/Fire Retardant Materials**

Non-combustible/fire retardant materials shall be used whenever possible.

**3.1.5 Combustibles in Nuclear Facilities (Reactor and Non-Reactor)**

NOTE 1: The area within a tank farm's fence line is considered to be a nuclear facility and subject to all the following requirements.

NOTE 2: Flammable liquids (including refueling) and vehicle use requirements are addressed in TFC-ESHQ-FP-STD-03.

1. Management shall ensure that the use of combustible materials is properly controlled and is ALARA.
2. Nuclear facilities (see definitions) shall have a documented, monthly, housekeeping inspection performed in accordance with NFPA 801, "Fire Protection for Facilities Handling Radioactive Materials."
  - a. Provisions for remedial action to correct conditions that increase fire hazards found during inspection shall be included.
  - b. Facility management shall be responsible for the inspections and documentation.
3. The combustible limit for the 242-A Pump and Evaporator Room Area is 250 kg (≈551 lbs) in accordance with HNF-SD-WM-FHA-024, "Fire Hazards Analysis for the Evaporator Facility (242-A);" and HNF-15279, "Technical Safety Requirements for 242-A Evaporator," Administrative Control (AC) 5.6.1.4, "Fire Protection," key element a), Combustible Loading, (5.1.4)
  - a. A baseline of combustibles has been developed.

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- b. The responsibility shall be maintained by 242-A to control the combustibles entering and leaving the affected area.
- 4. Wood used in a nuclear facility shall be pressure-treated fire retardant material with an Underwriters Laboratories (UL) classification of Fire Retardant (FR-S). Individual unlabeled pieces of wood (e.g., from a bundle or made by cutting larger pieces) shall be marked FR-S.
  - a. Ordinary wood, other than scaffolding, may be coated with a clear or colored fire retardant paint/coating to satisfy the fire retardant requirement.
  - b. Wood scaffolding shall be coated with a **CLEAR** fire retardant coating to satisfy the OSHA requirement that the boards are to be visible for inspection.
  - c. The fire retardant coating shall be applied in accordance with the manufacturer's instructions.
  - d. Noticeable degradation or damage to coating shall be repaired and coating reapplied.
- 5. Use of combustible materials in the construction of facilities and associated equipment shall be ALARA.
- 6. A search shall be performed to obtain non-combustible substitutes for such common materials as wood, plastic insulation, and especially plastic finish materials. When the non-combustible classification of a material is in question, it must be reviewed and approved in the form of a Fire Marshal Permit by the TOC FPE before use.
- 7. The selection and use of new insulated electrical wire for installation in cable trays shall be reviewed and approved by the TOC FPE.
- 8. Essential uses of combustible materials (such as plastic electrical and electronic components) are normally acceptable.
- 9. Use of combustible, essential, permanent items (including laundry, personal protective equipment, and office materials) shall be maintained ALARA.
- 10. Interior finishes shall meet the DOE requirement of flame spread 25, or less, and smoke density 50, or less, unless otherwise exempted by the DOE.
- 11. The Sherwin Williams Company, ENVIROLASTIC®, polyurea coating and lining system used to coat tank farm pits and surface areas meets the DOE criteria (flame spread 10/smoke density 35) and is acceptable for such listed purposes when applied in accordance with manufacturer's instructions. After application, the coating is considered a stable component not an additional combustible load.
- 12. Sheet plastic and tent fabric shall be tested and documented as meeting NFPA 701, tinted pink, or fire retardant (FR) stamped every 6 feet.

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13. Documentation of meeting test requirements should be requested from the vendor at the time of the order and made available to the TOC FPE upon request.
14. Tent/fabric/membrane structures greater than 200 ft<sup>2</sup> and canopies greater than 400 ft<sup>2</sup> require a Fire Marshal Permit. (See Section 3.4)
15. Foil-backed craft paper shall not be used as welding tarps.
16. Within the tank farm fenced area, a designated area shall be maintained for unused/waste combustible material staged to be removed from the farm and if needed, another designated area for staging combustibles/equipment for work in progress.
17. Combustibles shall be removed on a regular basis to keep inventory in the designated areas ALARA.

### **3.1.6 Fire Prevention Controls for Outside Locations**

Annual weather pattern changes can cause some difficulty in accurately predicting the fire conditions. Additionally, fire conditions can change rapidly. The best defense is to be prepared for every potential situation. The following are some of the preventive actions.

1. ALL open burning requires a Hanford Fire Marshal Permit.
2. DO NOT throw lighted materials from your vehicle.
3. Smoking is not permitted in government vehicles, but when smoking in your private vehicle, use your ashtray and make certain other smokers do the same.
4. Off-road driving is restricted to properly equipped vehicles:
  - A means of communication
  - A shovel
  - A portable fire extinguisher (2A rated minimum)
  - A spark arrester and appropriate shielding for catalytic converters and mufflers on all gasoline fueled vehicles and diesel vehicles (2007 or newer).
5. Do not allow vehicles to idle while off-road.
6. A “defensible space” shall be maintained around buildings and structures. The space shall extend at least 30 feet.

**NOTE:** It is recommended that combustible material be removed immediately upon discovery when it is near electrical equipment (e.g., motor control centers, transformers) or other heat producing equipment. It should be removed from other locations within 72 hours.

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7. Ground fuels shall be treated/removed, combustible materials (e.g., tumbleweeds) removed, and live vegetation within the defensible space shall be thinned/pruned and have dead materials removed.
8. Barbeques are allowed on Site in accordance with the Fire Marshal Bulletin AB06-001, current revision.
9. Call 911 (373-0911 for cell phones) if a fire occurs; even if the fire has been extinguished.

**3.2 Construction****3.2.1 Pre-Construction Requirements**

1. The construction manager shall ensure that applicable permits are obtained prior to engaging in activities or processes governed by the Permits (See Section 3.4).
2. Project Management shall ensure that the Hanford Fire Marshal's Office is represented, as appropriate, at the project "kick-off" meeting where project scope and applicability of Fire Marshal Permits and fire prevention programs shall be discussed.
3. The Hanford Fire Marshal's Office Construction/Demolition Fire Safety Inspection Checklist (A 6002-692) is available as guidance for items to be aware of and for areas of concern that should be addressed during construction or demolition activities. The TOC FPE is available to address any questions about the checklist and ensure the requirements are implemented.

**3.2.2 Temporary Construction Enclosures**

1. A review by the Hanford Site Selection Committee and the TOC FPE shall be initiated before the enclosure/offices, etc. are in place.
2. A Fire Marshal Permit for occupancy is required and will be issued after a walk down and approval by the TOC FPE.
3. Separate construction-related structures, such as temporary offices and sheds having combustible construction or contents, from buildings under construction.
4. Automatic sprinkler system piping or other fire protection equipment shall not be used to structurally support temporary enclosures erected within a facility.
5. Construct the enclosure supporting structures of noncombustible or fire-retardant materials.
6. Use non-combustible or fire-retardant materials for enclosure walls, ceilings, and floors.
7. Ensure that fabrics or plastic films used are certified as conforming to the requirements of the large-scale test described in NFPA 701.

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- a. Fire retardant material includes pressure-treated wood with an Underwriters Laboratory (UL) classification of “FR-S” or material treated with an UL listed or Factory Mutual (FM) approved fire retardant coating (paint).

**3.2.3 Sources of Ignition In-and-Around Temporary Enclosures**

1. Fasten the enclosing material securely and ensure it cannot be blown against heaters or other sources of ignition.
2. Enclosures and the area extending for 10 feet around the exterior of the enclosures shall be posted as “no smoking” areas.

NOTE: This posting is not required inside of buildings or radiological areas since these locations are already designated as “no smoking” areas.

3. Electric heaters may be utilized in temporary enclosures in accordance with manufacturer’s instructions.

NOTE: Combustibles shall be kept a minimum of 3 feet from the electric heater or in accordance with manufacturer’s instruction, whichever is greater.

4. Hanford Fire Marshal’s Permit is required for any fuel-fired heater use.

NOTE: For use in radiological areas or nuclear facilities, an Unreviewed Safety Question (USQ) is also required on the Permit, so allow for the required time interval.

5. Whenever possible; perform welding, cutting, open flame work, etc. in a designated area.

NOTE: A Fire Marshal Permit is required before an area can be utilized as a Designated Hot Work Area.

6. Install, use, and maintain temporary heating equipment according to the manufacturer’s instructions.

**3.2.4 Restrictions for Storage of Combustibles In and Around Temporary Enclosures**

1. Do not store combustible materials within the no smoking areas surrounding temporary enclosures.
2. Locate exhaust discharge from internal combustion engines and associated equipment away from combustible materials.

**3.2.5 Electrical Utilities**

1. All construction-operation electrical wiring and equipment for heating, lighting, or power purposes shall be in accordance with NFPA 70®, “National Electric Code®” (NEC®)<sup>1</sup>.

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<sup>1</sup>Registered trademark of the National Fire Protection Association.



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2. Remove temporary wiring upon completion of construction or purpose for which the wiring was installed.

### **3.2.6 Fire Protection at Construction/Demolition Sites**

This section is to identify any changes that the Hanford Fire Department should be aware of for medical and fire emergency response efforts (e.g., suppression/detection systems removed from service, entry restrictions, etc.).

### **3.2.7 General Requirements**

1. The Hanford Fire Department must be notified of each facility planned for decontaminating and decommissioning so they can address the changes in areas, such as Pre-Incident Plans.
2. The following requirements shall apply to construction/demolition sites, as applicable.
  - Fire protection must be provided on all construction sites as required by applicable sections of NFPA 241, "Standard for Safeguarding Construction, Alteration, and Demolition Operations," NFPA 1141, "Fire Protection in Planned Building Groups," and 29 CFR 1926, "Construction."
  - The TOC "Safety and Health Field Surveillance" database (down load from Software Distribution/Hanford Site Application) or Hanford Fire Marshal's Office Construction/Demolition Fire Safety Inspection Checklist (A 6002-692) can be used to document construction walk downs. Open deficiencies shall cause a PER to be generated.

NOTE: Track any unsafe conditions identified until corrected.

- Provide adequate portable firefighting equipment (fire extinguishers, hoses, etc.) and training for the use of the equipment.
- All firefighting equipment shall be periodically inspected and maintained in operating condition.

NOTE: Defective equipment shall be immediately replaced.

- Where underground water mains and hydrants are to be provided, they should be installed, completed, and in service prior to accumulation of combustible materials on the project site and prior to the completion of any project structure whenever possible. They shall be completely functional and code compliant before occupancy.
- Construction sites shall provide and maintain fire department vehicle access.
- Emergency vehicle access roads shall have an unobstructed driving surface width of at least 20 feet during all weather conditions and be able to withstand the live loads of fire department apparatus.

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- Where required, secure construction sites from unauthorized entry; however, maintain unobstructed access for Site emergency response vehicles to all areas and buildings.
- Factors to be considered in determining the need for security should include the hazards at the site, the chance of arson or accidental fires, and the exposure fire risk.
- Vehicle parking, storage of construction material, and established access routes due to security fencing shall not impede unobstructed emergency vehicle access.
- Provide the site/project with two-way radio communications, telephone service, fire alarm box, or other means for the purpose of emergency notification.
- Projects with multiple level buildings shall consider the limitations of the Site fire department when determining the need for dry standpipes during construction.

**3.2.8 Decommissioning of Fire Protection Features**

1. A Fire Marshal Permit is required for the deactivation.
2. An analysis shall be performed by a qualified FPE.
3. The analysis needs to demonstrate that existing fire protection systems are not needed to prevent such an event from occurring or an event is not possible. See TFC-ESHQ-FP-STD-06.
4. The deactivation permit and analysis package must be submitted to the Hanford Fire Marshal's Office for review and concurrence before any fire protection features are removed from service.

**3.2.9 Non-Emergency Use of Fire Hydrants**

These requirements apply to all TOC-managed facilities, operations, and activities. Fire hydrant/water supply tests are exempt from these requirements.

1. Non-emergency tie-ins to fire hydrants are forbidden without a Non-emergency Hydrant Tie-In Permit (A-6003-681).
2. The Site form must be prepared by the requester with assistance from and approval by the water purveyor.
3. The completed form shall be forwarded to the Hanford Fire Marshal for final approval.
  - a. The user shall observe any precautions specified on the tie-in permit to prevent damage to the fire hydrant or hoses (e.g., freezing weather precautions).

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4. Configuring an approved non-emergency tie-in installation shall be performed in accordance with [TFC-OPS-MAINT-C-01](#).
5. The user shall provide and use an approved fire hydrant wrench to open and close a fire hydrant.  
  
NOTE: Pipe wrenches shall NOT be used to open/close a hydrant.
6. Fire hydrants and hoses shall be depressurized when not in used.
7. Hoses shall be routed to avoid presenting a hazard to employees or vehicles.
8. The user shall ensure that the hydrant is fully open or fully closed, in order to prevent the drip valve from causing drain washout.

**3.3 Occupancy****3.3.1 Exits**

1. Every building exit and path to an exit shall be kept clear and unobstructed at all times.
2. Required exits shall not be locked in any way that prevents an individual from using the exit to leave the building.
3. Exterior building stairs shall be kept clean and unobstructed.
4. Exit doors shall not require more than one action to open.
5. Fire doors shall not be blocked open.
6. Emergency egress lighting shall be installed in accordance with NFPA 101®.
7. Emergency lights that are defective shall be repaired or replaced within 24 hours, or portable lighting shall be provided at the affected area(s) until the permanent lights are restored to service.

**3.3.2 Facilities Used by Mobility-Impaired Persons**

1. Facilities used by persons with impaired mobility must have accessible exits designed to accommodate those persons.
2. These facilities must have the same number of exits designed to accommodate the unimpaired by NFPA 101®.
3. In general, most new facilities must provide access for persons with impaired mobility, but there could be cases where a facility's operation would pose a direct threat to persons with specific disabilities. In these cases, it may not be reasonable to design the facility for accessibility where a direct threat exists.

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4. Existing facilities must have accessible exits according to this section if a person with impaired mobility is assigned to a building or must enter a building to perform their job.

**3.3.3 Minimum Clearance Between Storage and Sprinkler Heads**

At least 18 in. vertical clearance shall be maintained between the top of storage and sprinkler head deflectors.

NOTE: This does not apply to storage shelves and cabinets located against the wall.

**3.4 Fire Marshal Permits**

The person in charge of, or planning, the task/job (e.g., construction/building manager, field work supervisor, planner) must ensure that a request is submitted for the applicable Permit. A Permit is required for the activities listed below, as a minimum, before the activity commences or the design is released.

If the work package requires an USQ, the Fire Marshal Permit also requires an USQ. This can be accomplished by obtaining the Permit before the work package USQ review is performed and submitting it as part of the package, or if the work package review was performed without the permit, the FPE will submit the permit for USQ before it is officially issued.

**3.4.1 Obtaining a Fire Permit**

1. Complete the Hanford Fire Marshal Permit Request Form (<http://www5.rl.gov/firepermit/requestform.cfm>) and submit the Request Form to the TOC Fire Marshal.
2. A minimum of two working days is required for the Hanford Fire Marshal Permit to be issued. If a USQ is required extra time will be required.
3. The Permit must be in place before activities are initiated.

NOTE: Hot Work Permits are not obtained through the Hanford Fire Marshal's Office, but the Hanford Fire Marshal's Office should be notified of the hot work activity as part of the hazard communication effort. (See TFC-ESHQ-FP-C-01 for hot work requirements.)

4. The TOC Fire Marshal will provide approval for permit requests, determine required precautions, and provide hazard communication with the Hanford Fire Department.
5. A copy of the Permit shall be posted or otherwise readily accessible (e.g., work package) at each place of operation. The copy may also be carried by the Permit Holder.
6. The Permit Holder is responsible for implementing and ensuring requirements are adhered to.

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### 3.4.2 Activities Requiring a Fire Marshal Permit

Item	REQUIREMENT	SOURCE
1. *	<b>Automatic Suppression System</b> - The installation, modification, or permanent deactivation of automatic suppression systems.	NFPA 1; Table 1.12.7(a)
2.	<b>Chemicals</b> – Greater than the quantities listed in Attachment A. <b>Exception</b> – The Analytical Laboratory facilities operating in compliance with NFPA 45 are exempted from this item due to equivalent compliance.	NFPA 1; 1.12.20(d)
3.	<b>Combustible Material Storage</b> – To store more than 2,500 ft <sup>3</sup> gross volume	NFPA 1 Table 1.12.7(a)
4. *	<b>Compressed Gas</b> – Storage, handling, or use of compressed gases. Installation or modification of any compressed gas system. The amounts requiring a permit are listed in Attachment A relative to the specific hazard of the gas (e.g., flammable, etc.).  NOTE: This includes liquid petroleum (LP) gas (over 120 gallon water capacity) installation or modification of the system, use, or storage location.  <b>Exception:</b> The Analytical Laboratory facilities operating in compliance with NFPA 45 are exempted from this item due to equivalent compliance.	NFPA 1: Table 1.12.7(a)
5. *	<b>Construction/Demolition</b> - New construction projects; modifications to, or relocation of, existing facilities/structures; and demolition of facilities and structures or portions thereof.	NFPA 1: 1.14
6.	<b>Cutting and Welding (Designated Area)</b> – Designated cutting and welding operations. (TFC-ESHQ-FP-C-01 for requirements)  NOTE: Permit is issued annually. If the area is to be continued as a Designated Hot Work Area, the FPE will require notification for walk down before renewal will be issued.	NFPA 1: Table 1.12.7(a)
7.	<b>Exhibit &amp; Trade Shows</b> - When these activities are conducted within the Hanford Site.	NFPA 1: Table 1.12.7(a)
8. *	<b>Explosives</b> – Includes purchase, sell, disposal, use, possession, storage, or transportation of explosive by or for the TOC.	NFPA 1: Table 1.12.7(a)
9. *	<b>Fire Alarm and Detection Systems</b> - The installation, modification, or permanent deactivation of fire alarm and detection systems and related equipment.	NFPA 1: Table 1.12.7(a)
10.	<b>Fire Hydrants and Water Control Valves</b> - The installation, modification, or deactivation of a fire hydrant or use for non-fire protection purposes.  NOTE: The permitting of this activity is done through the Hanford Water Utilities' Office with concurrence by the Hanford Fire Marshal's Office.	NFPA 1; Table 1.12.7(a)

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Item	REQUIREMENT	SOURCE
11. *	<b>Flammable and Combustible Liquids –</b> <ul style="list-style-type: none"> <li>Installation, storage, use, handling, or transportation of Class I and Class II flammable liquids or Class III combustible liquids. (See Attachment A)</li> <li>To install, alter, clean, repair, line with a protective coating, remove, abandon, place temporarily out of service, or otherwise dispose of a flammable or combustible liquid tank</li> </ul>	NFPA 1: Table 1.12.7(a)
12. *	<b>Fuel Fired Portable Heaters –</b> To use any heater other than electrical in any TOC facility or area. Heaters shall be NRTL listed, maintained an adequate distance from combustibles, and used in accordance with manufacturer's instructions. (USQ required on all units used in a nuclear facility or radiologic area.)	TFC-ESHQ-FP-STD-09
13.	<b>General Storage –</b> To store materials indoors or outdoors, representing a broad range of combustibles, including plastics, rubber tires, and roll paper	NFPA 1, Table 1.12.7 (a)
14. *	<b>Hazardous Materials –</b> To store, transport on site, dispense, use, or handle hazardous materials in excess of the amounts listed in Attachment A.	NFPA 1, Table 1.12.7(a)
15. *	<b>Industrial Ovens -</b> Operation of industrial ovens and furnaces.	NFPA 1; Table 1.12.7(a)
16.	<b>Membrane Canopies, Structures, and Tents –</b> To erect or operate an air-supported membrane structure or any tent/structure having an area in excess of 200 ft <sup>2</sup> or a canopy in excess of 400 ft <sup>2</sup> . (See Section 3.1.5, items 12 through 14) <b>NOTE:</b> Membrane material shall meet NFPA 701 testing requirements. Documentation shall be made available upon request.	NFPA 1; Table 1.12.7(a)
17.	<b>Occupancy -</b> The use and occupancy of a new facility and the re-occupancy or change of use and occupancy of an existing facility, including portable structures. <b>NOTE:</b> All mobile units (e.g., conex boxes, office trailers, construction trailers, hazardous storage units, cargo containers, etc.) require a number. NFPA 1: 1.12.20(a) Before the occupancy permit is requested, get the number assigned in accordance with MSC-PRO-2827.	NFPA 1; 10.3
18.	<b>Open Burning/Fires –</b> All open burning and fires have to meet the safeguards of the issued Permit.	NFPA 1; Table 1.12.7(a)
19.	<b>Other -</b> Other activities not meeting one of these distinct categories yet falling under the scope of NFPA 1 permitting requirements	NFPA 1; Table 1.12.7(a)
20.	<b>Tar Kettles –</b> To place a tar kettle, a Permit must be obtained prior to the placement of a tar kettle.	NFPA 1; Table 1.12.7(a)
21.	<b>Torch-Applied Roofing Systems –</b> For the use of a torch for application of roofing materials.	NFPA 1; Table 1.12.7(a)

\*Permits requiring an USQ evaluation ALL the time.

NOTE: All Permits authorizing an activity in a nuclear facility requires an USQ evaluation.

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#### 4.0 DEFINITIONS

1. Construction.

NOTE: Construction does not include “routine” work.

- a. Construction does include any building structure/trailer (walls, ceiling fixtures, HVAC, Fire Protection System) new project, modification, relocation, or deactivation/demolition.

NOTE: This does not include wire runs or piping runs other than for fire protection. The focus is to ensure that Fire Protection and Life Safety Features (systems, exits, egress paths, etc.) are not impacted. Any question about the activities impact should be discussed with the TOC FPE.

- b. Construction does include erection of any structure larger than a set of trailer entry steps.

2. Combustible material (NFPA 5000™, Section 3.3.340.2). A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn; a material that does not meet the definition of noncombustible or limited-combustible.

3. Limited-combustible material (NFPA 5000™, Section 3.3.340.10). Building construction material not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg), where tested in accordance with NFPA 259 and includes: (1) materials having a structural base of noncombustible material with a surfacing not exceeding a thickness of 1/8 in. (3.2 mm) that has a flame spread index not greater than 50; and (2) materials, in the form and thickness used, other than as described in (1), having neither a flame spread index greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion.

4. Noncombustible material (NFPA 5000™, Section 3.3.340.11). A material that, in the form in which it is used and under the conditions anticipated will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. Materials that are reported as passing ASTM E 136 are considered noncombustible materials.

5. Nuclear facility:

204-AR	222-S	242-A
242-S	242-T	244-AR
A-Tank Farm	AN-Tank Farm	AP-Tank Farm
AW-Tank Farm	AX-Tank Farm	AY-Tank Farm
AZ-Tank Farm	B-Tank Farm	BX-Tank Farm
BY-Tank Farm	C-Tank Farm	S-Tank Farm
SX-Tank Farm	SY-Tank Farm	T-Tank Farm
TX-Tank Farm	TY-Tank Farm	U-Tank Farm

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1. 29 CFR 1910, "OSHA General Industry Regulations."
2. 29 CFR 1926, "OSHA Construction Industry Regulations."
3. DOE O 420.1B, "Facility Safety."
4. HNF-15279, "Technical Safety Requirements for 242-A Evaporator" (TSR), Administrative Control (AC) 5.6.1.4, "Fire Protection," key element a), Combustible Loading.
5. ENS-ENG-IP-05 R0, "ORP Fire Protection Program."

**5.2 References**

1. HNF-15279, "Technical Safety Requirements for 242-A Evaporator," AC 5.6.1.4, key element b) ignition control.
2. MSC-PRO-2827, "Facility and Mobile Office Number Management."
3. HNF-SD-WM-FHA-024, "Fire Hazards Analysis for the Evaporator Facility (242-S)."
4. National Fire Protection Association, Code 1 (NFPA® 1), "Uniform Fire Code."®
5. NFPA 70®, "National Electric Code®" (NEC®).
6. NFPA 101®, "Life Safety Code®."
7. NFPA 241, "Standard for Safeguarding Construction, Alteration, and Demolition Operations."
8. NFPA 701, "Standard Methods of Fire Tests for Flame-Resistant Textiles and Films."
9. NFPA 801, "Fire Protection for Facilities Handling Radioactive Materials."
10. NFPA 1144, "Protection of Life and Property from Wildfire."
11. TFC-ESHQ-FP-C-01, "Controls for Safe Hot Work."
12. TFC-ESHQ-FP-STD-03, "Flammable/Combustible Liquids."
13. TFC-ESHQ-FP-STD-06, "Fire Hazard Analysis and Fire Protection Assessment Requirements."
14. TFC-ESHQ-FP-STD-09, "Fire Protection System Winterization and Portable Heater Use."



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15. TFC-ESHQ-FP-STD-13, "Fire Protection Requirements for Hazardous Material and Used Waste Absorbing Material Storage."
16. TFC-PLN-13, "Fire Protection Program."

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**ATTACHMENT A - OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS MATERIALS**

Chemical	Definition/Description	Minimum Amount Requiring Permit
Carcinogen	<p>A substance that causes the development of cancerous growths in living tissue. A chemical is considered to be a carcinogen if:</p> <ul style="list-style-type: none"> <li>It has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen, or</li> <li>It is listed as a carcinogen or potential carcinogen in the latest edition of the Annual Report on Carcinogens published by the National Toxicology Program, or</li> <li>It is regulated by OSHA as a carcinogen.</li> </ul> <p><b>Examples:</b> Asbestos, benzene, beryllium, carbon tetrachloride, chloroform, diazomethane, P-dioxane, ethylene dichloride, and vinyl chloride.</p>	10 pounds
Cellulose Nitrate	(Pyroxylin) is a plastic substance, material, or compound, and cellulose nitrate film.	NFPA 1, Table 1.12.7(d) 25 pounds
Combustible Fiber	Readily ignitable and free-burning fibers, such as cotton, sisal, henequen, ixtle, jute, hemp, tow, cocoa fiber, oakum, baled waste, baled waste paper, kapok, hay, straw, excelsior, Spanish moss, or other like materials.	>100 cubic feet
Combustible Liquids	<p>A liquid having a flash point at or above 100°F. Combustible liquids are subdivided as follows. The category of combustible liquids does not include compressed gases or cryogenic fluids.</p> <ul style="list-style-type: none"> <li>CLASS II liquids are those having flash points at or above 100°F and below 140°F.</li> <li>CLASS III-A liquids are those having flash points at or above 140°F and below 200°F</li> <li>CLASS III-B liquids are those liquids having flash points at or above 200°F.</li> </ul>	<p>&gt;25 gallons inside</p> <p>&gt;60 gallons outside (except fuel oil used in conjunction with oil burning equipment)</p> <p>Other processing, storage, and uses as determined by NFPA 1, Table 1.12.7(a)</p>

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**ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS  
MATERIALS (cont.)**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Corrosive Gases	Corrosive - a chemical that causes visible destruction of , or irreversible alterations in, living tissue by chemical action at the site of contact. A chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described in Appendix A to CFR 49, Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. This term does not refer to action of inanimate surfaces.  <b>Examples:</b> Ammonia.	>200 cubic feet
Corrosive Liquids	A liquid which, when in contact with living tissue, will cause destruction or irreversible alteration of such tissue by chemical action. Examples include acidic, alkaline, or caustic materials.	55 gallons
Corrosive Solids	A solid which, when in contact with living tissue, will cause destruction or irreversible alteration of such tissue by chemical action.  <b>Examples:</b> Acidic, alkaline, or caustic materials.	500 pounds
Cryogens	A fluid that has a normal boiling point below 150°F  <b>Examples (flammable):</b> Hydrogen, methane.  <b>Examples (oxidizing):</b> Fluorine and liquid oxygen.  <b>Examples (corrosive):</b> Fluorine.	NFPA 1, Table 1.12.7(c)
Explosives	1. A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperatures, or 2. A material or chemical, other than a blasting agent, that is commonly used or intended to be used for the purpose of producing an explosive effect and is regulated by Article 77.  <b>Examples:</b> Dynamite, TNT, nitroglycerine, C-3, C-4, black powder, smokeless powder, propellant explosives, and display fireworks.	Any amount  NFPA 1, Table .12.7(d)

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**ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS  
MATERIALS (cont.)**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Flammable Gas	Any material which is a gas at 68°F or less at 14.7 psia of pressure (a material has a boiling point of 68°F or less at 14.7 psia) which: <ul style="list-style-type: none"> <li>Is ignitable at 14.7 psia when in a mixture of 13 percent or less by volume with air, or</li> <li>Has a flammable range at 14.7 psia with air of at least 12 percent, regardless of the lower limit.</li> </ul>	200 cubic feet  NFPA 1, Table 1.12.7(b)
Flammable Liquids	A liquid having a flash point below 100°F and having a vapor pressure not exceeding 40 psia at 100°F. The category of flammable liquids does not include compressed gases or cryogenic fluids. Class I liquids include those having flash points below 100°F and are subdivided as follows: <ul style="list-style-type: none"> <li>Class I-A liquids include those having a flash point below 73°F and having a boiling point below 100°F.</li> <li>Class I-B liquids include those having a flash point below 73°F and having a boiling point at or above 100°F.</li> <li>Class I-C liquids include those having a flash point at or above 73°F and below 100°F.</li> </ul>	>5 gal. inside  >10 gal. outside  Other processing, storage, and uses as determined by NFPA 1, Table 1.12.7(a)
Flammable Solids	A solid substance, other than one which is defined as a blasting agent or explosive, that is liable to cause fire through friction or as a result of retained heat from manufacture, which has an ignition temperature below 212°F, or which burns so vigorously or persistently when ignited that it creates a serious hazard. Flammable solids include finely divided solid materials which, when dispersed in, or as, a cloud could be ignited and cause an explosion.  <b>Examples (organic):</b> Camphor, cellulose nitrate, and naphthalene.  <b>Examples (inorganic):</b> decaborane, lithium amide, phosphorous heptasulfide, phosphorous sesquisulfide, potassium sulfide, anhydrous sodium sulfide and sulfur.	100 pounds

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**ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS  
MATERIALS (cont.)**

Chemical	Definition/Description	Minimum Amount Requiring Permit
Highly Toxic Gases, Liquids, and Solids (including pesticides and fumigants)	<p>A material which produces a lethal dose or lethal concentration which falls within any of the following categories:</p> <ul style="list-style-type: none"> <li>• A chemical that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each</li> <li>• A chemical that has a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the base shin of albino rabbits weighing between 2 and 3 kilograms each</li> <li>• A chemical that has a median lethal dose concentration (LD50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour, or less if death occurs within an hour, to albino rats weighing between 200 and 300 grams each.</li> </ul> <p>Mixtures of these materials with ordinary materials, such as water, might not warrant classification as highly toxic. While this system is basically simple in application, any hazard evaluation that is required for the precise categorization of this type of material shall be performed by experienced, technically competent persons.</p>	Any amount
Inert and Simple Asphyxiant Gases	<p>An asphyxiant is a substance that can cause unconsciousness or death by suffocation (asphyxiation). Asphyxiants themselves are not toxic materials. They work by displacing so much oxygen from the ambient atmosphere that the hemoglobin in the blood cannot pick up enough oxygen from the lungs to fully oxygenate the tissues. As a result, the victim slowly suffocates.</p> <p><b>Examples:</b> Nitrogen (N<sub>2</sub>), helium (He), neon (Ne), argon (Ar), methane (CH<sub>4</sub>), propane (CH<sub>3</sub>CH<sub>2</sub>CH<sub>3</sub>), and carbon dioxide (CO<sub>2</sub>).</p>	6,000 cubic feet

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MATERIALS (cont.)**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Irritant Liquids	An irritant is a substance which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.  <b>Examples:</b> Diphenylaminechloroarsine, xylyl bromide, and chloracetophene.	55 gal.
Irritant Solids	An irritant is a substance which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.	500 pounds
Irritant Gases	An irritant is a substance which is not corrosive but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.	200 cubic feet
Liquefied Petroleum Gases	A material that is composed predominantly of the following hydrocarbons or mixtures of them: propane, propylene, butane (normal butane or isobutene) and butylenes.	>120 gal. (water capacity)
Magnesium	The pure metal and alloys of which the major part is magnesium.	>10 pounds
Nitrate Film	See explosive materials - not in general use today.	Any amount
Oxidizing Gases	A material other than a blasting agent or explosive that irritates or promotes combustion other materials, thereby causing fire either of itself or through the release of oxygen or gases.  <b>Examples:</b> oxygen, ozone, oxides of nitrogen fluorine and chlorine.	504 cubic feet
Oxidizing Liquids	Same as above.  <b>Examples:</b> bromine, hydrogen peroxide, nitric acid, perchloric acid, sulfuric acid.	Class 4 - any amount  Class 3 - 1 gal.  Class 2 - 10 gal.  Class 1 - 55 gal.

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MATERIALS (cont.)**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Oxidizing Solids	<p>A material other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.</p> <p><b>Examples:</b> chlorates, chromates, chromic acid, iodine, nitrates, perchlorates, peroxides.</p>	<p>Class 4 - Any amount</p> <p>Class 3 - 10 pounds</p> <p>Class 2 - 100 pounds</p> <p>Class 1 - 500 pounds</p>
Organic Peroxide Liquids and Solids	<p>An organic compound that contains the bivalent –O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms have been replaced by an organic radical. Organic peroxides can present an explosion hazard (detonation or deflagration) or they can be shock sensitive. They can also decompose into various unstable compounds over an extended period of time.</p> <p><b>Examples:</b></p> <p>Class 1 - acetyl cyclohexane sulfonyl 60-65% concentration by weight, fulfonyl peroxide, diisopropyl peroxydicarbonate 100%.</p> <p>Class 2 - acetyl peroxide 25%, t-butyl hydroperoxide 70%, peroxyacetic acid 43%.</p> <p>Class 3 - benzoyl peroxide 78%, cumene hydroperoxide 86%, decanoyl peroxide 98.5%.</p> <p>Class 4 - benzoyl peroxide 70%, t-butyl hydroperoxide 70%, decumyl peroxide 98%.</p> <p>Class 5 - benzoyl peroxide 35%, 1,1-di-tbutyl peroxy 3,5,5-trimethylcyclohexane 40%.</p>	<p>Class I - Any amount</p> <p>Class II - Any amount</p> <p>Class III - 10 pounds</p> <p>Class IV - 20 pounds</p>

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**ATTACHMENT A – OCCUPANCY PERMIT REPORTING THRESHOLDS FOR HAZARDOUS  
MATERIALS (cont.)**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Other Health Hazards	<p>A hazardous material which affects target organs of the body, including, but not limited to, those materials which produce liver damage, kidney damage, damage to the nervous system, act on the blood to decrease hemoglobin function, deprive the body tissue of oxygen, or affect reproductive capabilities, including mutations (chromosomal damage) or teratogens (effects on fetuses).</p> <p><b>Examples:</b> carbon tetrachloride, nitrosamines, halogenated hydrocarbons, uranium, mercury, carbon disulfide, carbon monoxide, cyanides, silica, asbestos, lead, PBCP.</p>	<p>Liquids - 55 gal.</p> <p>Solids - 500 pounds</p>
Pyrophoric Gases	<p>A material that will spontaneously ignite in air at or below a temperature of 130°F.</p> <p><b>Examples:</b> diborane, phosphine, silane.</p>	Any amount
Pyrophoric Liquids	<p>A material that will spontaneously ignite in air at or below a temperature of 130°F.</p> <p><b>Examples:</b> diethyl aluminum chloride, diethyl beryllium, diethyl phosphine, diethyl zinc, dimethyl arsine, triethyl aluminum etherate, triethyl bismuth, triethyl borane, trimethyl aluminum and trimethyl gallium.</p>	Any amount
Pyrophoric Solids	<p>A material that will spontaneously ignite in air at or below a temperature of 130°F.</p> <p><b>Examples:</b> cesium, hafnium, lithium, white or yellow phosphorus, plutonium, potassium, rubidium, sodium and thorium.</p>	Any amount
Sensitizer Liquids	A material that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.	55 gal.
Sensitizer Solids	A material that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.	500 pounds



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MATERIALS (cont.)**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Sensitizer Gases	A material that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.	200 cubic feet
Toxic Gases	<p>A material which produces a lethal dose or a lethal concentration within any of the following categories:</p> <ul style="list-style-type: none"> <li>• A material that has a median lethal dose (LD50) of 50 milligrams or less per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.</li> <li>• A material that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.</li> <li>• A material that has a median lethal concentration (LD50) in air more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for one hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each.</li> </ul> <p><b>Examples:</b> arsine, cyanogen, diborane, fluorine, germane, hydrogen cyanide, nitric oxide.</p>	Any amount
Toxic Liquids	<p>Same as above.</p> <p><b>Examples:</b> acrolein, acrylic acid, hydrazine, hydrocyanic acid, tromethane, tetraethylstannane.</p>	10 gal.

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<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Toxic Solids	Same as above.  <b>Examples:</b> phenylmercury, arsenic pentoxide, calcium cyanide, aflatoxin B, barium chloride, cadmium chloride, chromium oxide, mercury chloride.	100 pounds
Unstable (Reactive) Gases	A material, other than an explosive, which, in the pure state or as commercially produced, will vigorously polymerize, decompose, condense or become self-reactive and undergo other violent chemical changes, including explosion, when exposed to heat, friction or shock, or in the absence of an inhibitor or in the presence of contaminants or in contact with non-compatible materials.	Class 4 - Any amount  Class 3 - Any amount  Class 2 - 50 pounds  Class 1 - 100 pounds
Unstable (Reactive) Liquids	A material, which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature.  <b>Examples:</b>  Class 4 – acetyl peroxide, dibutyl peroxide, dinitrobenzene, ethyl nitrate, peroxyacetic acid, trinitrobenzene.  Class 3 – hydrogen peroxide >52%, hydroxylamine, paranitroaniline, perchloric acid.  Class 2 – acrolein, acrylic acid, hydrazine, methacrylic acid, sodium perchlorate, styrene.  Class 1 – acetic acid hydrogen peroxide 35% to 52%, paraldehyde, tetrahydrofuran.	Class 4 - Any amount  Class 3 - Any amount  Class 2 - 5 gal.  Class 1 - 10 gal.

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MATERIALS (cont.)**

<b>Chemical</b>	<b>Definition/Description</b>	<b>Minimum Amount Requiring Permit</b>
Water Reactive Liquids	<p>A material which explodes; violently reacts; produces flammable, toxic or other hazardous gases; or evolves enough heat to cause self-ignition or ignition of nearby combustibles upon exposure to water or moisture.</p> <p><b>Examples:</b></p> <p>Class 3 - triethylaluminum, isobutylaluminum, trimethylaluminum, bromine pentafluoride, bromine trifluoride.</p> <p>Class 2 - calcium carbide, calcium metal, cyanogen bromide, lithium hydride, potassium metal, sodium metal, sodium peroxide, sulfuric acid.</p> <p>Class 1 - acetic anhydride, sodium hydroxide, sulfur monochloride, titanium tetrachloride.</p>	<p>Class 3 - Any amount</p> <p>Class 2 - 5 gal.</p> <p>Class 1 - 10 gal.</p>
Water Reactive Solids	Same as above.	<p>Class 3 - Any amount</p> <p>Class 2 - 50 pounds</p> <p>Class 1 - 100 pounds</p>